

## Circuit housing

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### CLAIMS

1. Miniaturized circuit housing to encapsulate and provide  
external contacts for at least one integrated circuit, in  
particular of the flip-chip or wafer-level-package type,  
with a housing floor, the lower surface of which bears  
housing contact elements for making external contact and  
the upper surface of which is electrically connected to  
circuit contact elements on the lower surface of the  
circuit,  
characterized in that a housing lid is provided, in  
particular opposite the housing floor, which presses the  
circuit with the circuit contact element resiliently  
against the upper surface of the housing floor, and between  
the circuit contact elements and the housing floor there is  
no connection that fixes their materials permanently  
together.
2. Circuit housing according to Claim 1,  
characterized in that the housing lid on its lower surface,  
which faces the circuit, comprises at least one spring  
element that presses the circuit against the housing floor.
3. Circuit housing according to Claim 2,  
characterized in that the spring element or elements is/are  
fixedly attached to the lower surface of the housing lid.
4. Circuit housing according to Claim 2,  
characterized in that the spring element or elements is/are  
loosely inserted between housing lid and circuit.

5. Circuit housing according to claim 1,  
characterized in that the housing lid can itself act as a  
spring because of its flexible construction.
6. Circuit housing according to claim 1,  
characterized by a wall that substantially rigidly connects  
floor and lid of the housing to one another at their  
circumference and tightly seals off the interior of the  
housing.
7. Circuit housing according to Claim 6,  
characterized in that the wall is formed as part,  
particularly an integral part, of the housing floor or lid  
and is sealed to the respective other housing component in  
a gas-tight manner.
8. Circuit housing according to Claim 7,  
characterized in that the seal is formed by an external  
plastic encapsulation of at least the butt joint between  
the housing lid or housing floor and the wall.
9. Circuit housing according to claim 1,  
characterized by being filled with a medium that is slow to  
react, in particular an inert gas.
10. Circuit housing according to claim 1,  
characterized by a flat four-cornered shape, with  
substantially level and rectangular housing floor and  
housing lid.
11. Circuit housing according to claim 1,  
characterized in that the lid of the housing is rigidly  
constructed and joined to the wall, or is shielded by a

rigid covering, in such a way that externally applied force is not transmitted to the circuit.

12. Circuit housing according to claim 1,  
characterized in that the lid of the housing is constructed  
as a heat sink in order to cool the circuit, in particular  
bears cooling ribs or similar area-increasing structures.

13. Circuit housing according to claim 1,  
characterized by a construction of the housing lid and/or  
the spring element or elements such that the pressing force  
exerted by these components between the circuit and the  
housing floor is adjusted to suit the material of which the  
circuit contact elements are made, in particular regarding  
their flow behaviour and shape, in order to maintain a  
permanently good electrical contact between the circuit  
contact elements and the housing floor.

14. Circuit housing according to claim 1,  
characterized in that the housing contact elements have  
substantially the shape of a sphere or section of a sphere,  
like solder balls.

15. Circuit housing according to claim 1,  
characterized in that the housing contact elements are  
constructed substantially as contact pins or flat contact  
surfaces.

16. Circuit housing according to claim 1,  
characterized in that the housing floor is constructed as a  
circuit board or a section thereof.

17. Circuit housing according to claim 1,  
characterized in that at the upper surface of the housing  
floor, to make internal contact with the circuit contact  
elements, there are provided inner housing contact surfaces  
that in particular are constructed as flat elevations.

18. Circuit housing according to Claim 17,  
characterized in that the inner housing contact surfaces  
are made substantially of gold or a gold alloy and in  
particular are formed by the stamping of bumps.

19. Circuit arrangement with an electronic circuit, in  
particular of the flip-chip type, and a circuit housing  
according to one of the preceding claims,  
characterized in that the circuit contact elements are  
constructed in the nature of bumps and consist  
substantially of gold or a gold alloy.